

1653

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/645,835A

DATE: 03/16/2001
TIME: 16:06:50

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3 <110> APPLICANT: Heinrichs, Jon
4 Johnson, Leslie S.
5 Koenig, Scott
6 Adamou, John E.
8 <120> TITLE OF INVENTION: Pneumococcal Protein Homologs and Fragments for
9 Vaccines
11 <130> FILE REFERENCE: 469201-493
C--> 13 <140> CURRENT APPLICATION NUMBER: US/09/645,835A
14 <141> CURRENT FILING DATE: 2000-08-25
16 <150> PRIOR APPLICATION NUMBER: U.S. 60/150,750
17 <151> PRIOR FILING DATE: 1999-08-25
19 <160> NUMBER OF SEQ ID NOS: 7
21 <170> SOFTWARE: PatentIn Ver. 2.1
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25 <212> TYPE: DNA
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32 atcagtgtcg aagaaggcat ctctgctgaa cagatcgtag tcaaaattac tgaccaaggc 240
33 tatgtgacct cacatggtga ccattatcat ttttacaatg ggaaagttcc ttatgatgcg 300
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86 35 40 45
88 Ala Lys Ala Pro Lys Thr Asn Lys Thr Met Asp Gln Ile Ser Ala Glu
89 50 55 60
91 Glu Gly Ile Ser Ala Glu Gln Ile Val Val Lys Ile Thr Asp Gln Gly
92 65 70 75 80
94 Tyr Val Thr Ser His Gly Asp His Tyr His Phe Tyr Asn Gly Lys Val
95 85 90 95
97 Pro Tyr Asp Ala Ile Ile Ser Glu Glu Leu Leu Met Thr Asp Pro Asn
98 100 105 110
100 Tyr Arg Phe Lys Gln Ser Asp Val Ile Asn Glu Ile Leu Asp Gly Tyr
101 115 120 125
103 Val Ile Lys Val Asn Gly Asn Tyr Tyr Val Tyr Leu Lys Pro Gly Ser
104 130 135 140
106 Lys Arg Lys Asn Ile Arg Thr Lys Gln Gln Ile Ala Glu Gln Val Ala
107 145 150 155 160
109 Lys Gly Thr Lys Glu Ala Lys Glu Lys Gly Leu Ala Gln Val Ala His
110 165 170 175
112 Leu Ser Lys Glu Glu Val Ala Ala Val Asn Glu Ala Lys Arg Gln Gly
113 180 185 190
115 Arg Tyr Thr Thr Asp Asp Gly Tyr Ile Phe Ser Pro Thr Asp Ile Ile
116 195 200 205
118 Asp Asp Leu Gly Asp Ala Tyr Leu Val Pro His Gly Asn His Tyr His
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121 Tyr Ile Pro Lys Lys Asp Leu Ser Pro Ser Glu Leu Ala Ala Ala Gln
122 225 230 235 240
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128 245 250 255
130 Asp Val Thr Pro Asn Pro Gly Gln Gly His Gln Pro Asp Asn Gly Gly
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133 Tyr His Pro Ala Pro Pro Arg Pro Asn Asp Ala Ser Gln Asn Lys His
134 275 280 285
136 Gln Arg Asp Glu Phe Lys Gly Lys Thr Phe Lys Glu Leu Leu Asp Gln
137 290 295 300
139 Leu His Arg Leu Asp Leu Lys Tyr Arg His Val Glu Glu Asp Gly Leu
140 310 315 320
142 Ile Phe Glu Pro Thr Gln Val Ile Lys Ser Asn Ala Phe Gly Tyr Val
143 325 330 335
145 Val Pro His Gly Asp His Tyr His Ile Ile Pro Arg Ser Gln Leu Ser
146 340 345 350
148 Pro Leu Glu Met Glu Leu Ala Asp Arg Tyr Leu Ala Gly Gln Thr Glu
149 355 360 365
151 Asp Asp Asp Ser Gly Ser Asp His Ser Lys Pro Ser Asp Lys Glu Val
152 370 375 380
154 Thr His Thr Phe Leu Gly His Arg Ile Lys Ala Tyr Gly Lys Gly Leu
155 385 390 395
157 Asp Gly Lys Pro Tyr Asp Thr Ser Asp Ala Tyr Val Phe Ser Lys Glu
158 400 405 410
160 Ser Ile His Ser Val Asp Lys Ser Gly Val Thr Ala Lys His Gly Asp
161 415 420 425
163 His Phe His Tyr Ile Gly Phe Gly Glu Leu Glu Gln Tyr Glu Leu Asp
164 430 435 440
166 Glu Val Ala Asn Trp Val Lys Ala Lys Gly Gln Ala Asp Glu Leu Ala
167 445 450 455
169 Ala Ala Leu Asp Gln Glu Gln Gly Lys Glu Lys Pro Leu Phe Asp Thr
170 460 465 470
172 Lys Lys Val Ser Arg Lys Val Thr Lys Asp Gly Lys Val Gly Tyr Met
173 475 480 485
175 Met Pro Lys Asp Gly Lys Asp Tyr Phe Tyr Ala Arg Asp Gln Leu Asp
176 490 495 500
178 Leu Thr Gln Ile Ala Phe Ala Glu Gln Glu Leu Met Leu Lys Asp Lys
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181 Lys His Tyr Arg Tyr Asp Ile Val Asp Thr Gly Ile Glu Pro Arg Leu
182 520 525 530
184 Ala Val Asp Val Ser Ser Leu Pro Met His Ala Gly Asn Ala Thr Tyr
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187 Asp Thr Gly Ser Ser Phe Val Ile Pro His Ile Asp His Ile His Val
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190 Val Pro Tyr Ser Trp Leu Thr Arg Asp Gln Ile Ala Thr Ile Lys Tyr
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211 Asn Lys Ser Asp Leu Ser Gln Ala Glu Trp Gln Gln Ala Gln Glu Leu
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214 Leu Ala Lys Lys Asn Ala Gly Asp Ala Thr Asp Thr Asp Lys Pro Lys
215 735
217 Glu Lys Gln Gln Ala Asp Lys Ser Asn Glu Asn Gln Gln Pro Ser Glu
218 750
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221 765
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224 780
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236 <210> SEQ ID NO: 3

237 <211> LENGTH: 2379

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239 <213> ORGANISM: Streptococcus pyogenes

241 <400> SEQUENCE: 3

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284 <210> SEQ ID NO: 4

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286 <212> TYPE: PRT

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289 <400> SEQUENCE: 4

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302 Gly Val Asp Phe Pro Thr Asp Asp Gly Phe Ile Leu Thr Lys Asp Ser
303 65 70 75 80
305 Lys Ile Leu Ser Lys Thr Asp Gln Gly Ile Val Val Asp His Asp Gly
306 85 90 95
308 His Ser His Phe Ile Phe Tyr Ala Asp Leu Lys Gly Ser Pro Phe Glu
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311 Tyr Leu Ile Pro Lys Gly Ala Ser Leu Ala Lys Pro Ala Val Ala Gln
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314 Arg Ala Ala Ser Gln Gly Thr Ser Lys Val Ala Asp Pro His His His
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317 Tyr Glu Phe Asn Pro Ala Asp Ile Val Ala Glu Asp Ala Leu Gly Tyr
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VERIFICATION SUMMARY
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